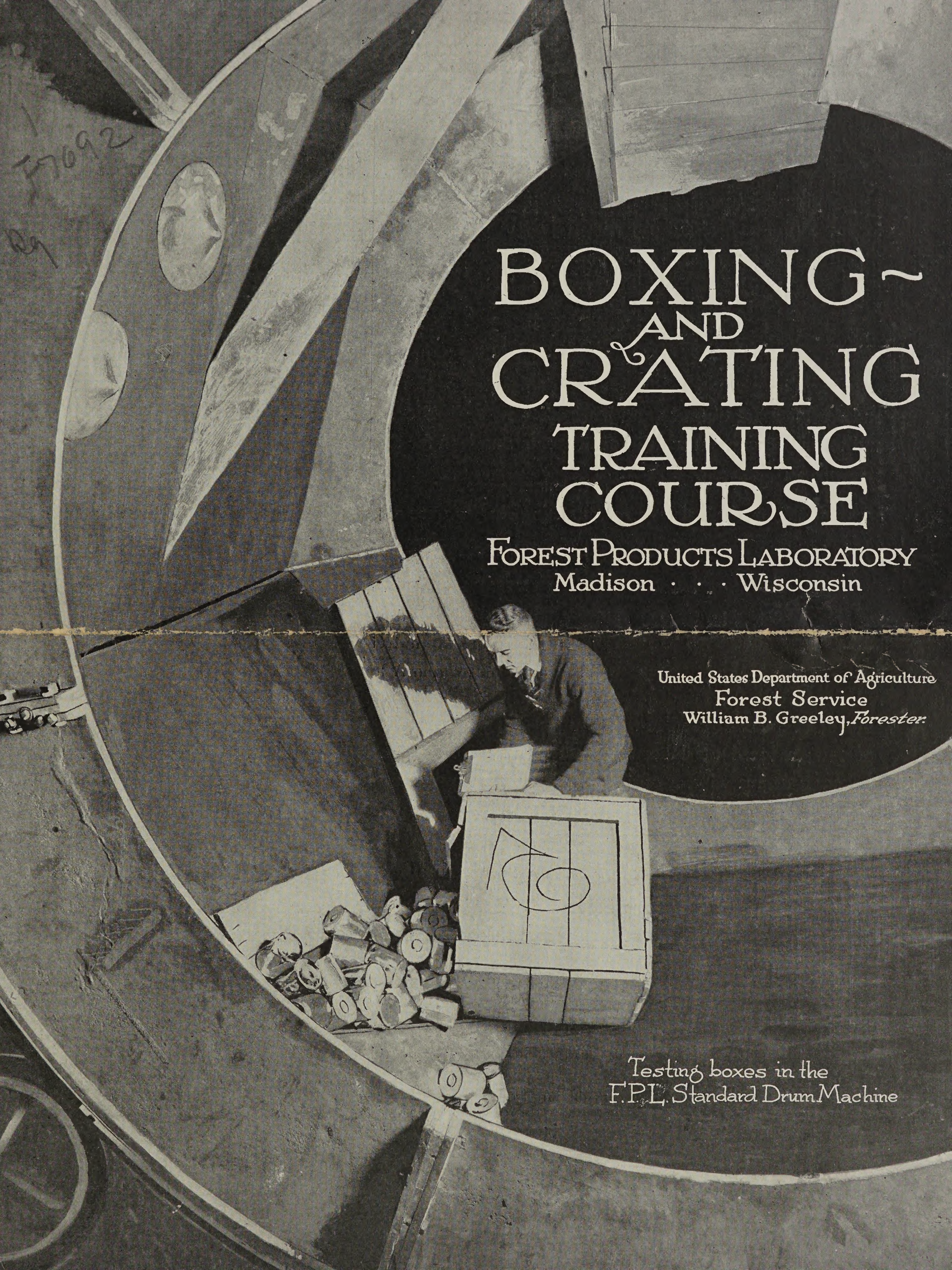

BOXING AND CRATING TRAINING COURSE

FOREST PRODUCTS LABORATORY
Madison · · · Wisconsin

United States Department of Agriculture
Forest Service
William B. Greeley, *Forester*

Testing boxes in the F.P.L. Standard Drum Machine

THE NEED FOR BETTER PACKING

There is a daily loss to shippers and manufacturers, conservatively estimated at $500,000, due to poor packing and to expensive and improperly designed containers for all classes of domestic and foreign shipments. During the year 1919, Class 1 railroads alone expended $103,078,862 for lost and damaged freight, and in July of the same year the western inspection bureau in 12 cities refused or repaired 43,738 packages.

How the Need for Accurate Information is Being Met.

Commercial research and mechanical tests at the Forests Products Laboratory on better containers began in 1915, in cooperation with the National Association of Box Manufacturers and the National Canners and National Wholesale Grocers Associations. In this work methods and testing equipment which have become standard for the box industry were developed.

The War Department prepared general specifications for overseas shipments from the data accumulated by the Laboratory. Packing studies were afterwards made at ports and economical designs worked out for many containers for war equipment.

The Laboratory has cooperated with associations and companies in improving the packing of widely varying types of commodities, such as electric lamps, cream separators, automobile parts, small tractors, talking machines, boiler castings, furniture, paints and oils, piano benches, fruit baskets and crates, and shoes. These tests and studies, in many cases, resulted in the redesign of the container. The new design gave increased strength and often decreased the amount of material used in its manufacture; gave security against pilfering; decreased the cubic contents; reduced the labor and cost of manufacture; made possible more rapid production of packages; decreased cost of ocean freight; and permitted improved methods of handling freight. This work is of value to all manufacturers, shippers, and dealers, and to the public at large, which is vitally concerned in receiving its necessary commodities in satisfactory and economical containers.

The demand upon the Laboratory for information suggested a series of cooperative training classes for men from various industries. These classes began during the war and have been attended by representatives of many large shippers and forwarding companies and furniture and box manufacturers.

Outline of Boxing and Crating Course.

The object of this course is to demonstrate for manufacturers and packers the principles that underlie proper box and crate construction and to develop economical containers that will deliver the contents in a satisfactory condition at a minimum cost.

The course lasts 5½ working days. Reference material and condensed notes are given out, and it is necessary for those attending to devote a portion of each evening to study.

Only twelve men are accepted in a class. This makes possible the exchange of ideas and experiences with men from different organizations and the research men of the Laboratory. A series of supper discussions lasting about an hour give further opportunity for friendly exchange of ideas. One subject is studied each day, and the day's work is completed with an oral or written review.

MONDAY..........Registration. "What did you come to get?" Tour of Forest Products Laboratory.
Drop tests to demonstrate characteristic failures of different types of boxes.
Informal supper at 6.30 p. m.

TUESDAY........Drum tests to demonstrate the necessity of adequate nailing. Demonstration to show effect of varying number of pieces on sides and ends.

WEDNESDAY....Relative holding power of different kinds of nails. Effect of using green lumber for boxes. Tension tests.
Informal supper at 6.30 p. m.

THURSDAY......Strapping; methods of application and efficiency. Influence of grade of lumber and location of defects on boxes and crates. Crate construction and tests. Drum tests.

FRIDAY............Solid and corrugated fiber board and wire-bound boxes and crates. Identification of box woods.
Informal supper 6.30 p. m.

SATURDAY........Source of supply and characteristics of box woods. Final questionnaire—"Did you get what you came for?" Final conferences.

The course is given in the most completely equipped box laboratory in the country. For a long time this box-testing laboratory was the only one in the world, but within the last year the laboratory has aided in planning several commercial laboratories.

Course Repeated Monthly.

The Boxing and Crating Course, lasting a week, will be repeated monthly as long as there is a demand for it. A cooperative fee of $100, payable to the Forest Products Laboratory, is charged partially to cover the cost of conducting the course. This fee does not include traveling and living expenses. Rooms in Madison may be obtained at from 50 cents to $3 a day; board can be obtained as low as $5.50 a week. A list of hotels giving rates and location will be sent each man enrolled.

Courses begin on the following dates in 1920 and 1921:

July 12, 1920.
August 9, 1920.
September 13, 1920.
October 4, 1920.
November 8, 1920.
December 6, 1920.
January 10, 1921
February 7, 1921.
March 7, 1921.
April 4, 1921.
May 2, 1921.
June 20, 1921.

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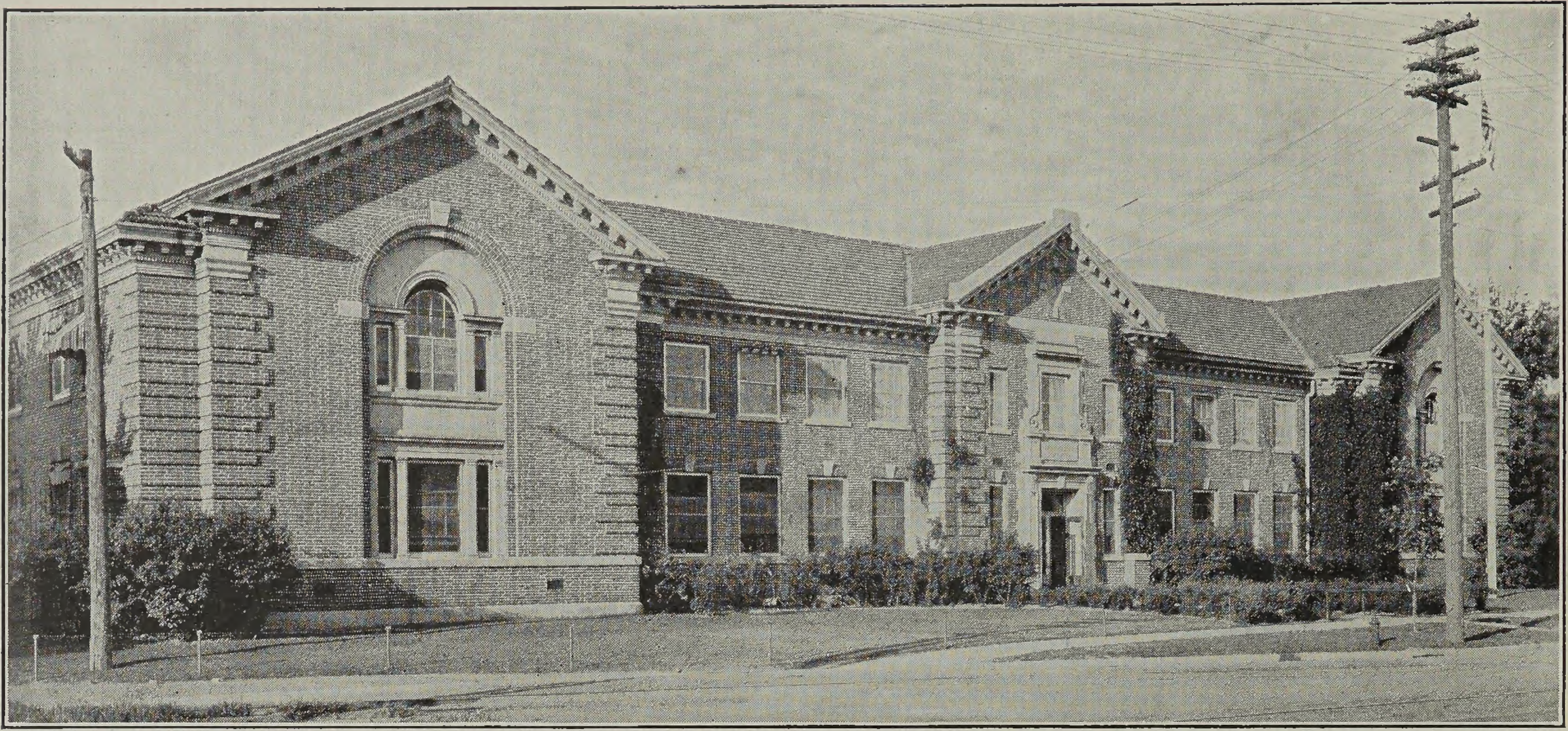

The Forest Products Industrial Research Laboratory.

The Forest Products Laboratory is the industrial research branch of the Forest Service of the United States Department of Agriculture at Madison, Wisconsin, maintained in cooperation with the University of Wisconsin. The guiding thought in the development of the Forest Products Laboratory has been the systematic acquiring of knowledge that will be useful in the building up of American industry. To this end the Laboratory is engaged in—

(1) Acquiring fundamental knowledge about wood and its properties;

(2) Applying this knowledge to practical uses of wood; and

(3) Seeing to it that economical methods and materials developed are utilized to the best advantage.

In this work 220 engineers, wood technologists, manufacturing specialists, and assistants are employed.

Investigations and experiments are undertaken both independently and for associations and companies on a cooperative basis. Results obtained are disseminated through cooperative reports, commercial demonstration, correspondence, Government bulletins, mimeographed circulars, articles in the trade press, and practical instruction courses in Boxing and Crating and Kiln Drying given at the Laboratory.

All correspondence should be addressed to the Director, Forest Products Laboratory, Madison, Wisconsin.

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